

ABSTRACT

[Abstract]

[Object] To provide a copper-based catalyst having high activity and superior heat resistance and durability and to provide a manufacturing method of the above catalyst which can be performed at a low cost by a process that is improved as simple as possible.

[Solving means] A catalyst used for steam reforming of methanol has Al alloy particles each having an oxide surface layer containing fine copper oxide particles, the Al alloy particles being produced by a process comprising the step of performing leaching treatment for Al alloy particles with an aqueous alkaline solution which are prepared by pulverizing a bulky Al alloy having a quasicrystalline phase or a related crystalline phase thereof, the quasicrystalline phase being represented by the formula: $\text{Al}_{100-y-z}\text{Cu}_y\text{TM}_z$ (where y is in the range of 10 to 30 atomic percent, z is in the range of 5 to 20 atomic percent, and TM indicates at least one of transition metals other than Cu). In the catalyst described above, the oxide surface layer containing fine copper oxide particles is formed by adjusting leaching conditions of the leaching treatment so as to form an oxide surface layer, which contains dispersed fine Cu particles and which is composed of an Al oxide and a transition metal

oxide, on the surface of each of the Al alloy particles,
followed by heat treatment of the leached Al alloy particles
in an oxidizing atmosphere, whereby some or all of the fine
Cu particles contained in the oxide surface layer are
converted into the fine copper oxide particles.

[Selected Figure] Fig. 1